



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,388	05/21/2001	Jose E. Gonzalez	DP-301117	8897

7590 10/24/2003

MARGARET A. DOBROWITSKY
DELPHI TECHNOLOGIES, INC.
Mail Code: 480-414-420
P.O. Box 5052
Troy, MI 48007-5052

EXAMINER	
RUTHKOSKY, MARK	
ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,388

Applicant(s)

GONZALEZ ET AL.

Examiner

Mark Ruthkosky

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 5-12 is/are allowed.
- 6) ☐ Claim(s) 1-4 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 13-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Velasquez et al. (US 5,616,152.) The rejection of claims 5-8 and 10 has been overcome by the applicant's amendment.

The instant claims are to a method of making lithium-intercalateable electrodes for batteries comprising the steps of applying film-forming slurry to an electrically conductive grid wherein the slurry includes a plurality of lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder and drying the slurry.

Velasquez et al. (US 5,616,152) teaches a method of making lithium-intercalateable electrodes for batteries comprising the steps of applying a film-forming slurry to one or both sides of an electrically conductive grid wherein the slurry includes a plurality of lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder and drying the slurry (see column 9, lines 25-40, examples 1-2 and claims 1-14.) Lithium intercalation electrodes are noted to include a slurry of an active material, a binder and a plasticizer, (in col. 7.) Electrolyte is shown to imbibe the porous electrodes upon assembly of the cell through the porous structure based on the removal of the plasticizer (see col. 5, line 50 to col. 6, line 15.)

The electrode film may also be prepared from a film forming a laminate with the electrode active material film applied to both sides of the current collector (column 9, lines 25-40.) Heat and pressure may be applied to form the electrode. The current collector includes metal foils and screens (col. 3, lines 1-25) and the process of pressing the sheets onto the collector is inherently met by embedding the film onto the collector. As such, the claims are anticipated.

Claim Rejections - 35 USC § 103

The rejection of claims 9 and 11-12 under 35 U.S.C. 103(a) as being unpatentable over Velasquez et al. (US 5,616,152) has been overcome by the applicant's amendment.

Allowable Subject Matter

Claims 5-12 are allowed.

The instant claims 5-7 are to a method of making lithium-intercalateable electrodes for lithium-ion batteries comprising the steps of applying a film-forming slurry to an electrically conductive grid on a carrier sheet wherein the slurry includes a plurality of lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder and a solvent for the binder. The film is dried by removing the solvent. A second carrier strip is applied to the first film and the first carrier sheet is removed. A second slurry is applied to the second face of the grid wherein the solvent in the second slurry dissolves at least some binder in the first film and promotes bonding of the first and second films to one another and to the grid. The prior art does not teach a method, as claimed, wherein the carrier strips are applied to the grid and later to

Art Unit: 1745

the film followed by the partial dissolving of the first film to form a bond with the second film.

As such, the claims are allowed.

The instant claims 8-12 are to a method of making lithium-intercalateable electrodes for lithium-ion batteries comprising the steps of forming a slurry including a plurality of lithium-intercalateable particles dispersed throughout a mixture of a polymeric binder and a solvent for the binder; drying the film by removing the solvent; embedding the face of a conductive grid into the film and applying a film-forming slurry to the second side of the electrically conductive grid wherein the solvent in the slurry dissolves at least some binder in the first film and promotes bonding of the first and second films to one another and to the grid. The electrode is then dried and the plasticizer is removed from the mixture to leave a network of pores. The pores are backfilled with a lithium ion-conducting electrolyte. The prior art does not teach a method, as claimed, wherein the grid is embedded into a film followed by the partial dissolving of the first film by a solvent of the film-forming slurry to form a bond between the first film and the second film. As such, the claims are allowed.

Response to Arguments

Applicant's arguments filed 8/11/2003 have been fully considered but they are not persuasive. The applicant argues that the instant invention to a method of fabricating of lithium intercalating electrodes by adding electroactive films to opposite sides of a conductive grid is not anticipated by Velasquez et al. (US 5,616,152), as the reference does not teach a solvent used to coalesce the films and bond them together to form an indistinguishable parting line between the

Art Unit: 1745

two films. It is noted that claims 1-4 and 13-15 do not include this limitation in the claims.

Therefore, the rejection is proper and the cited art anticipates the claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Examiner Correspondence

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 703-305-0587. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:00.) If attempts to reach

Art Unit: 1745

the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 703-308-2383.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Mark Ruthkosky

Primary Patent Examiner

Art Unit 1745

Mark Ruthkosky
10/22/03